# "Educational Media": An internet based master-program for teachers and educational managers

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Abstract

The paper outlines a 2-year master degree program for teachers and educational managers on the use of "educational media" in education. It does not address the majority of teachers but a group of experts who will be able to manage the change in educational institutions towards a systematic use of ICT in education. The master degree program on "educational media" is delivered over the internet and provides students with an opportunity to experience the options and problems of online learning. The paper presents more information on the didactical design of the program and experiences with delivering the program as a means of teachers' professional development.

Keywords

Educational Media, Online Learning, Didactical Design, Master Program, Internet

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## "Educational Media": An internet based master-program for teachers and educational managers

ICT has a huge impact on education but it also has implications for the professional development of teachers. However, in many programs of teacher education the use of ICT often is reduced to a rather basic training of computer technology. The educational aspects of ICT in instruction still are neglected in many courses very often. But ICT is not just another new tool for teaching, it opens new and different scenarios of teaching and learning that also change the role of teachers in education and is a challenge to the development of teachers' professional role.

Therefore, when we talk about ICT in teachers' professional development we must also talk about the changing role of teachers in technology-enhanced classrooms, about the shift from teaching to learning and the move from teachers as instructors conducting lessons to teachers as managers and providers of environments for self-directed learning. Wheeler (2000) describes some of these changes that teachers are confronted with and other authors reflect on the changing culture of learning (Loveless & Ellis, 2001; Schofield, 1995).

In his seminal paper, Shulman (1987) has outlined essential components of the professional knowledge of teachers. With the increasing acceptance of technology based learning in society and the changing role of teachers in education professional competencies of teachers also have to adapt (Soler, Craft, & Burgess, 2001).

Most of current programs in teacher (further) education face the challenge of how to address a large quantity of teachers on the topic of ICT in instruction. Therefore, these programs focus on large-scale implementations of trainings in the area of ICT and teachers' professional development. We, however, aimed at addressing those teachers that wanted to gain responsibility for managing change in educational organizations and are in charge of introducing technology based learning in educational institutions.

The following paper outlines such an interdisciplinary program for teachers and managers of education. The program is delivered online via the internet and provides a comprehensive approach to the development of professional expertise in the field. The program is addressing people with work experience and lasts for two years. Due to the intensity of the program, it is not an option that could be delivered to all teachers and educational managers on a large scale, but it demonstrates a feasible way to build experts in the field of "educational media".

## The idea behind "Educational Media"

"Educational Media" is an online study program for teachers and educational managers that work in different educational settings. It is offered for professionals with work experience who are planning and implementing computer based training programs or who use technology in their teaching at school or corporate training.

The program focuses on the conceptual part of planning learning arrangements that are based on digital media. Students do not learn how to program or produce course materials. They are trained on how to plan technology based learning scenarios and reflect the theoretical implications of instructional design decisions. The program is laid out as an interdisciplinary field of study with ten courses on educational theory, learning psychology, educational technology, instructional design, media education, educational management, contexts of learning with media and project management. Each of the 10 courses consists of six units with a study text (of around 25 pages), additional web sources and study assignments.

In itself, the program is conceptualized as a blended learning arrangement that consists primarily of phases of online learning that are accompanied by 2-3 mandatory face-to-face meetings per year that take place during the weekends. During the first face-to-face kick-off meeting students build learning groups that consist of around 6-8 members. The students have to work on assignments during each unit that are intended for individual work as well as for group discussion.

Our material mainly consists of some kind of textual material, which is delivered digitally via our learning platform in the internet. Sometimes this emphasis on text is being questioned and other means of conveyance based on interactive multimedia are asked for. It is, however, our experience that in our case this kind of material is suited best to address the given learning objectives efficiently. The learning objectives mainly are targeted towards an understanding and application of abstract concepts, which still are explained best by text. There are, for example, no dynamic processes we could want to visualize and integrate as simulations in the curriculum.

For group discussions, we use a tool for audio conferencing that enhances synchronous group communication significantly over text-based chats. Again, most of the conversation is being conducted by text in special internet forums that support the learning groups.

On some occasions, our distant students have the opportunity to participate in the research colloquium that takes place in our laboratory and is being transmitted over the internet as an audiovisual stream. Students

then can ask back questions to the presenter in a chat window over the internet that opens on the screen of the presenter.

The materials of each unit are disseminated every three weeks on a fixed time schedule. The students have to return their assignments (typically essays) to the tutor that is responsible for the topic. The assignments typically do not consist of tasks that require a rather simple repetition of the study text. In order to support an intensive cognitive transformation of the materials the assignments consist of tasks that requires the students to analyze, compare, discuss, apply or relate the material with some other information or context and therefore, force the learner to a thorough processing of the material.

The students receive an individual, differentiated feedback on their assignments and in case their answer is sufficient, they gain credits for their homework. These credits are accumulated to receiving the master's degree and make up around ½ of the required credits. Each semester ends with a face-to-face meeting where students present their projects and thesis and the written exams take place. It is not intended to test the ability to recall the study texts, but it might, for example, be based on a case study or some other type of assessment that tests the individual's competence to apply concepts or procedures.

We do not fear that students will be able to "cheat" with their homework and, for example, let somebody else take the assignments since they also have to prove their knowledge in the written exams. Furthermore, since the assignments are not simple tasks that would only require a recall of learned material an individual answer of every student is necessary.

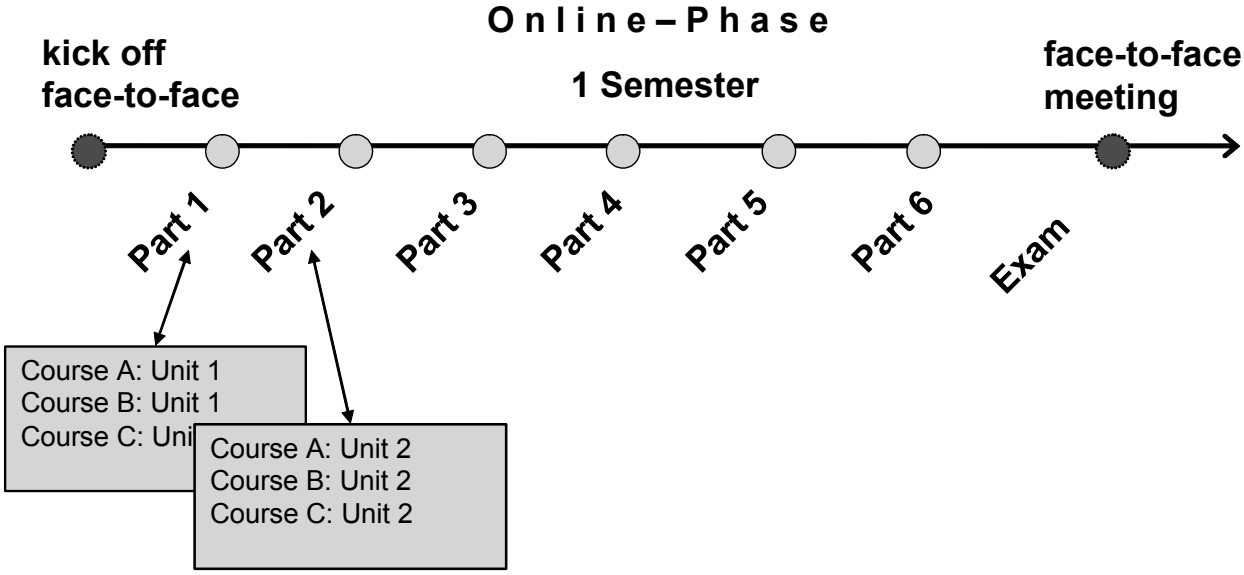


Fig. 1: Delivery of the study program "Educational Media" (time structure)

In other distance education programs, passing the final exams drive students learning activities. In our approach, the final exams typically can be passed rather easily if the student has worked on the earlier assignments. The function of those assignments is not to test students' performance but to engage and enhance learning activities. Therefore, we speak of learning tasks and not assignments and test and we are convinced that an emphasis must be put on learning activities during semester instead of testing activities at the end of a semester period.

The student has to pay 5.800 Euro for the complete 2-year master program plus costs for the internet access which is around 15 Euro per month. The development of the material has been paid by a grant from the national government in Germany. The delivery of further education, however, has to be financed by student fees in Germany.

Only in some cases, the school or company the student works for pays some of the cost, so it is the individual student who decides to take the program and it is the individual student that has to be convinced that to take the program is a valuable enhancement for his/her career. In traditional programs of distance education, we are confronted with dropout rates of up to 50% and more. Therefore, to keep the retention rate of students high is of up most importance for continuing the program. We are pleased that the dropout rate in our program is under 10% and thus, very low.

The program is four semesters long and can be taken while the student is at work. It requires a workload of 15 hours per week and consists of ten courses with approximately 4 credits. For the master degree, two projects, a master thesis, and a final oral exam have to be taken successfully. The program is offered in German and starts twice a year with around 25 students each semester. The program is in German, students come from several European countries and even from Abu Dhabi and Australia. It finishes with a master's degree that has been accredited by a national agency that approves programs in higher education and therefore offers an internationally renowned academic degree

Most of our students are between 30 and 40 years old with a mean of 36.5 years (about 50% male / 50% female). The majority of the students has a background in education; they work in the context of corporate training and human resource management and are responsible for planning, conducting, and evaluating training courses in different fields. Typically, when they studied for the first time, designing media for education was not a prominent subject then. Therefore, they are interested in acquiring and enlarging their competence in the field of computer based learning in their context of education.

The teachers in our program that work at schools typically are interested in the application of media in the context of schools. They gain a broader understanding of the learning with media, but we are not able to address the specific issues of learning with media in different content areas, like language learning, sciences, or humanities. This definitely is a disadvantage for this group of participants, but the various contents and contexts (primary school to higher education) are so diverse that we do not see a possibility to address all these areas with the necessary and appropriate emphasis in our program.

**The didactical approach of Educational Media**

Distance Education programs still typically base their interaction with students on two aspects:

1. distribution of learning materials
2. testing the learning outcome

The learning process itself has to be organized and supervised by the student himself. Some traditional support systems provide the students with local support centers where students can meet other students or mentors. Increasingly, the internet is being used for supporting students and facilitating communication between students and tutors. In many cases, however, it still is not integrated as an essential part addressing the learning process in the core of the curriculum. Hence, the discussion on E-Learning has not reached a large adoption in the realm of distance education.

The current discussion on learning supports the idea of the individual student being responsible for his/her own learning and organizing his/her learning activities by themselves. The "lonely" learner in distance education that in his/her learning is not directed by a teacher or some other external entity has become the ideal of some "constructivist" theorizing. In distance education this approach, however, faces several problems:

Many learners are not able to cope with the demands of self-regulated learning. They do not keep up continuous learning activities during the time the program is running. Instead, their efforts are directed very much towards passing an exam. This goes along with a rather "shallow" style of learning. Students learn for the examination but will not be able to transfer their learning to "real life". Consequently, this style of learning reaches poor results when learning transfer is evaluated instead of test performance.

A "deep" approach to learning, on the contrary, needs a continuous engagement of the learner over a longer period of time. Furthermore, in order to reach certain, sophisticated learning goals a more intensive exchange between learners and a tutor is necessary. In our program, students are to learn to express themselves in a digital environment, to

elaborate a position and present their position in a group discussion. They shall be able to listen to other positions, to work together with other fellow students on a document, and to integrate other's views in a jointly developed argument. To achieve these goals, students must engage in group activities that must be planned quite rigorously and that take some effort for supervising on the tutors side.

Recently, the internet increasingly is being discussed as an environment not only for fast and easy delivery of information but also as a means for interpersonal communication. The growing interest in "computer supported cooperative learning" (CSCL) points to the demand for interpersonal exchange while learning in the internet.

In our program, we provide students with learning tasks as assignments that – to a certain extent – rely on a cooperative learning approach. Firstly, we perceive cooperation as a means to enhance the intensity of learning. And secondly, cooperation is an important method to convey certain goals of learning, e.g. learning to present an opinion, to participate in an (online) communication, to find a compromise in a group discussion etc.

**The instructional design of Educational Media**

The instructional design of our program for distance education is guided by our 3C-model of didactical components that illustrates our theoretical approach. The basic problem of the instructional design of any learning environment can be conceptualized as a decision of defining the relative weight of three components. In a second step, the delivery format has tp be chosen based on these didactical decisions.

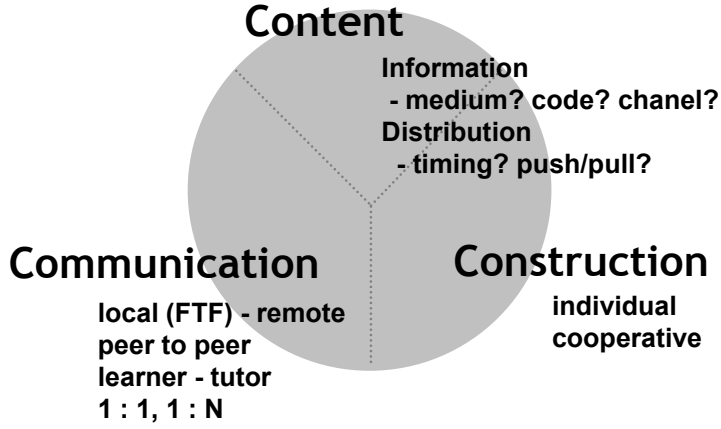


Figure 2: Components of the learning arrangement

According to the 3-C model, any learning environment consists of three components:

- a content component that makes learning material available to a learner
- a communication component that offers interpersonal exchange between learners or learners and tutors and
- a constructive component that facilitates and guides individual as well as cooperative learning activities to actively operate on learning tasks (or assignments) with different degrees of complexity (from multiple-choice to projects or problem based learning)

These components can be delivered in various formats: in a FTF scenario, based on exchange media, transmitted as analogue information by air or via cable or as digital packets over the internet in a synchronous or asynchronous setting with text, audiovisual or other multimedia elements.

Learning arrangements differ in the relative weight of the three components. The didactical scheme of a learning arrangement can be described by specifying the amount of time a learner is engaged with activities regarding these three components. There are learning arrangements where learning is based solely on a content component, e.g. a web-based-training that is managed completely by the computer. In a "virtual seminar", the communication component is the most prominent feature of the learning arrangement. Finally, in problem based and collaborative learning approaches, the learner will devote most of the learning time with the constructive component of a learning environment.

Such "pure" approaches, however, often fail in the field because they are not able to deliver the rich experience that is essential for successful learning. It becomes necessary to combine elements from different components in order to support learners to reach their learning objectives.

It is important to point out that neither "content", nor "communication" or "construction" are always necessary elements in all learning arrangements. Furthermore, the preference for a certain philosophy of learning and teaching (e.g. a constructivist approach or learner-centered principles) does not automatically answer the question what component to include in what quantity. Regardless of a theoretical model of learning, it seems necessary to start with the goals and learning objectives a learning arrangement shall address.

The basic design issue of a learning arrangement therefore is: How much time should learners spent with activities related to the three components? To answer this question the goals and objectives the learning environment tries to address have to be analyzed. The specification of learning objectives usually helps to define the relative weight of the three components in blended learning arrangements.

If the learning objectives primarily consist of the acquisition of information and basic knowledge then the communication and construction component can be limited. Communication and construction are not necessary ingredients in all learning environments and learners do not accept them if they are not perceived as facilitating elements to their learning process.

Learning arrangements most often consist of a content component. It is, however, not an essential ingredient of all environments. Approaches of virtual "learning communities", for example, do not necessarily need a base of didactically structured learning materials.

The content component will be included if

- the knowledge consists of facts or rules the learner should be able to recall
- the knowledge can be explicated and communicated by media / technological means
- information should be presented to learners
- the knowledge of certain information is a prerequisite for other communicative or constructive learning activities

The communication component seems necessary when

- the knowledge reaches a certain complexity
- a deeper understanding of a theoretical framework is required
- the knowledge consists of different competing concepts
- students should learn to formulate, express and discuss a personal point of view
- students should learn to participate in discussions, to formulate and receive feedback in discursive settings

The construction component will be included if

- knowledge is to be applied (and not only to be recalled)
- the knowledge consists of procedures (and not only of declarative knowledge) that require practice
- the content includes "fuzzy" knowledge

As a rule of thumb, one could suggest that a third of the learning time should be devoted to each component. The relative weight of each component, however, cannot be derived from learning theory alone; it has to suit the demands of the learning situation and depends on several parameters of the didactical field (e.g. learning goals and objectives, characteristics of the content, the target group and situational / institutional demands).

In our study program, students devote about a third of their learning time with each component: Working with study materials provides them with latest concepts on educational media from different theoretical backgrounds. The assignments encourage students into constructive and communicative activities that are supervised by tutors.

## Conclusion

In many cases, the discussion on ICT in education still concentrates on the question of the availability of computers in classrooms. However, ICT must be seen as a major challenge that has many implications to education. A mayor topic in this context is the professional development of expertise in the field of using ICT in education. The changing role of teachers who increasingly have to manage (technology based) education instead of conducting lessons makes it necessary to think about the role of teachers. Professional development in this context then has to address this change.

As mentioned above, our 2-year online master-program is not suitable as a large-scale solution for teachers' professional development in the context of ICT. It is, however, a feasible way to develop expertise in a smaller group of experts in the educational field that are able to advance innovative approaches in education. We perceive ICT as a catalyst for change, it many areas educational technology has proven to own the potential to innovate education in many senses.

Therefore, to us it seems obvious that a training program for teachers and educational managers *about* ICT should also *use* ICT as a means of delivering education. Participating in a ICT-based course provides a realistic, credible and forceful approach to demonstrate and experience the possibilities and options of ICT for education. Definitely, such a course program must rely on an appropriate and convincing didactical design since we are faced with a target group that consists of learners with rather high level of expectations.

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